



February 11, 2015

Mr. Scott Green, RG
Remedial Projects Unit Manager
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

**Re: Comments on the ADHS Health Consultation Dated January 8, 2015,
Evaluation of Water Sampling Results in the Roosevelt Irrigation District,
Phoenix, Maricopa County, Arizona**

Dear Mr. Green:

Synergy Environmental, LLC, on behalf of the Roosevelt Irrigation District (RID), has reviewed and provides the following comments regarding the Arizona Department of Health Services (ADHS) *Health Consultation - Evaluation of Water Sampling Results in the Roosevelt Irrigation District (RID)*, dated January 8, 2015 (ADHS Report). We are submitting these comments to ADEQ for the administrative record because ADEQ has attached the ADHS Report to its website. It seems this ADHS Report was prompted by a request of one or more parties who are potentially responsible parties (PRPs) for groundwater contamination in the West Van Buren Area (WVBA) Water Quality Assurance Revolving Fund (WQARF) Site and these PRPs have already begun to misconstrue the significance of the report's narrowly focused conclusions to ADEQ's feasibility study review process.

The ADHS Report is a very limited and incomplete characterization of public risk profile in the WVBA WQARF Site. The ADHS Report has significant limitations, summarized below, and does not address the more fundamental issues that are critical considerations in the process for ADEQ's selection of an appropriate groundwater remedy for the WVBA WQARF Site under state law and the WQARF Program that will address the over one dozen RID wells currently exceeding applicable health-based legal standards for the hazardous contaminants that are impacting those wells and rendering them unfit for their impending use as a West Valley drinking water source without treatment.

- ADHS considers a hypothetical scenario wherein untreated water from well RID-84 is used for drinking water consumption. This is not a realistic scenario.
- ADHS concludes that, if RID-84 were used as potable water, "*...it would not be expected to harm people's health...*" despite the fact that it violates applicable federal and state drinking water standards.

- ADHS does not consider the planned use of groundwater from other, more contaminated RID wells as a source of drinking water, even though that has been determined by ADEQ to be the “reasonably foreseeable use” of the water supply.
- ADHS does not consider the health effects of prolonged (and ongoing) public exposure from inhalation of the thousands of pounds of contaminants released each year into the ambient air of the WVBA WQARF Site.
- ADHS fails to consider recent exposure assessment air sampling data that show “*many breathing-zone air samples exceed screening-level guidelines for chronic exposure to TCE and PCE ... in ambient air.*”¹
- The ADHS Report does not mention the ADEQ policy restricting the uncontrolled transfer of contaminants from one environmental media (groundwater) into another (ambient air)².
- ADHS fails to note, as it has in other recent and similar ADHS health consultations, the statutory requirement to enforce Arizona Aquifer Water Quality Standards developed to protect all Arizona aquifers for a drinking water use and to be protective of human health and the environment.

The ADHS Report examined two limited scenarios related to “potential health risks” from hazardous volatile organic compound (VOC) contamination impacting RID wells in the WVBA WQARF Site. Although somewhat confusing in scope, the first stated purpose of the ADHS Report was to evaluate the potential health risks associated with one specific well (RID-84) “*as if it were used as potable water.*” ADHS concluded that exposure to VOCs in the water supply from RID-84 “*would not be expected to harm people’s health under typical conditions of household water use.*” Such a conclusion disregards the fact that tetrachloroethene (PCE) is present at a concentration of 8.1 micrograms per liter [µg/L], which exceeds the primary drinking water maximum contaminant level (MCL) standard of 5.0 µg/L. MCLs are enforceable health-based standards set by the United States Environmental Protection Agency (EPA) as the legal threshold limit for the concentration of a substance that is safely allowed in public water systems. Consequently, the water in this hypothetical scenario is prohibited, as a matter of law, from being used as a potable drinking water source without treatment. In fact, serving this contaminated water for potable purposes, as considered in the ADHS Report, would be a violation of federal and state law, as Arizona has adopted the EPA primary MCLs as applicable Arizona public drinking water supply standards.³

¹ Early Response Action, Public Health Exposure Assessment and Mitigation Summary Report, Sept. 16, 2011.

² ADEQ has confirmed this policy in response to the legal position taken by Maricopa County Air Quality Department which “clearly articulated” that “ADEQ does not support the relocation of contaminants from one media (groundwater) to another (air). Contaminants should be removed from the environment and treated or disposed of appropriately.” See ADEQ letter to the Director of Superfund Program, Environmental Protection Agency Region 9, November 14, 2007.

³ A.R.S. § 49-353.A.2; A.A.C. R18-4-109.

The second stated purpose of the ADHS Report was to evaluate hazardous VOC concentrations in other RID wells and canal water to determine if there is a health concern for people that come in contact with this water *"during recreational use and gardening."* The ADHS Report provides little useful information in this regard and simply clarifies, once again, that there is no current risk to public health from incidentally swallowing small amounts of contaminated water while occasionally gardening or playing in the water.⁴ The ADHS Report did not evaluate the more pertinent issue of the public health risk associated with potable use of contaminated groundwater from these RID wells. Consequently, this report accomplishes very little towards informing the public about the health concerns associated with the reasonably foreseeable future use of contaminated groundwater in the WVBA WQARF Site as a drinking water resource.

RID is concerned that the casual reader of the ADHS Report will fail to grasp these distinctions, especially given the mischaracterization of the ADHS Report provided to ADEQ by the PRPs. In this regard, the ADHS Report's Executive Summary states, *"ADHS concluded that ingestion exposure to TCE and PCE in groundwater and canal water in RID sampling area is not expected to harm people's health."* This conclusion is confusing and misleading. Since this statement (in bold font) so plainly references ingestion, the general public may wrongly interpret this statement as applicable to potential drinking water use. The public, however, would need to sift through the detailed report to understand the evaluation is not about potable use (like the first scenario) and only considers very limited and incidental exposure to contaminants. The misplaced emphasis on this exposure pathway and failure to address the health risk associated with potable use of this water supply are confusing, misleading and inadequate.

RID also is concerned that the ADHS Report fails to consider the potential public health effects of prolonged (and ongoing) public exposure from inhalation of the thousands of pounds of contaminants released each year into the ambient air of the WVBA WQARF Site. Over the past ten years, an average of nearly 3,000 pounds/year of VOC contaminants have been released into the local environment, the ambient air and surface water in the WVBA WQARF Site. ADHS fails to include recent air sampling data that consider that *"many breathing-zone air samples exceed screening-level guidelines for chronic exposure to TCE and PCE ... in ambient air."*⁵

⁴ Such points of exposure and assumed intake may be appropriate at present, particularly because RID has converted most of the open waterways in the WVBA to buried pipelines. However, these assumptions do not apply to past exposures. In particular, video footage that was telecast on KPHO news showed local residents swimming in RID canals and intentionally drinking contaminated water. Past public exposure potential is likely much greater due to higher contaminant concentrations, more widespread points of exposure, and through direct and incidental ingestion.

⁵ For example, TCE concentrations up to 29.0 µg/m³ were measured in the breathing zone in areas of public exposure. All TCE concentrations measured in this study exceeded the Annual Arizona Ambient Air Quality Guideline of 0.58 µg/m³, established by ADHS. See Early Response Action, Public Health Exposure Assessment and Mitigation Summary Report, Sept. 16, 2011

The ADHS Report only discussed health risks based on current and future exposure and did not consider the consequence of long-term exposure over the past 30 or possibly 50 years of past exposure to VOC contaminants at the WVBA WQARF Site. There also was no consideration of ADEQ's determination that measures should be taken to limit the transfer of contaminants from groundwater into the air. RID would have thought the state agencies would coordinate on such important policy matters. Even the City of Phoenix, an identified PRP for the WVBA WQARF Site, has expressed support for a remedy that will "*capture and treat the contaminants ... preventing exposure to the public and the environment.*"⁶ Likewise, SRP previously indicated, "[a]lthough not required to meet water quality standards associated with RID's current irrigation use, some or all of the groundwater could be treated to reduce the transfer of VOCs from the current plume to the air".⁷ Not only have such measures already been adopted at the WVBA WQARF Site, ADEQ has required similar measures at other WQARF sites.

At the West Osborn Complex WQARF Site, ADEQ required treatment that would provide a high degree of public protection against potential exposure to VOCs in air.⁸ It is apparent that ADEQ is applying this policy against the transfer of contaminants at WQARF sites regardless of whether "an unacceptable risk level" is created by the transfer.⁹ In fact, ADEQ's prior actions at other communities contradict the recent arguments raised by the PRPs that the minority population in West Phoenix should not be afforded the same level of environmental and public health protection as provided at other groundwater cleanup sites.¹⁰

Further, it is curious that this particular ADHS Report does not contain specific language that has been included by ADHS in other recent, relevant and similar health consultation reports. For example, in a similar July 2013 report, ADHS noted that "*[a]t the present time, the chemicals detected in the monitoring wells ... are not expected to cause public health concern*" and that "*[t]here would be no public health concern if these wells were to be used as*

⁶ City of Phoenix Comments in letter to ADEQ dated January 13, 2015, Attachment 2, page 1. It is unclear why the Environmental Programs Manager for the City of Phoenix supports a remedial strategy that prevents exposure to the public, but the City of Phoenix attorney concurs that treatment is not necessary if no immediate health risk exists. See City of Phoenix Comments, page 1. .

⁷ SRP letter regarding Roosevelt Irrigation District's Proposed Early Response Plan, West Van Buren WQARF Site, December 4, 2009.

⁸ Final Feasibility Study Report for the Shallow Groundwater System, West Osborn Complex WQARF Site, Phoenix, Arizona, prepared by GeoTrans, Inc. January 27, 2012, page 46. Note, the proposed remedy was projected to remove approximately 30 pounds of VOCs per year.

⁹ *Ibid.* For example at the West Osborn Complex WQARF Site, ADEQ stipulated treatment to address uncontrolled hazardous VOCs even though there were no Maricopa County regulatory requirements. It was stated that the use of treatment to eliminate air emissions was a matter of ADEQ internal policy and because the Site "encompasses predominantly residential neighborhoods" and there may consequently be "political and /or public perception concerns."

¹⁰ Working Group comments in letter to ADEQ dated January 14, 2015, pages 9-10.

residential wells, because no cancerous or non-cancerous adverse health effects would be expected under the assumed exposure scenarios.”¹¹ However, this ADHS report goes on to say that “[i]n Arizona, all aquifers are identified as drinking water source aquifers unless specifically exempt (ARS §49-224). The Arizona Aquifer Water Quality Standards (AAWQSs) are enforceable standards developed to protect groundwater sources for drinking water use (AAC §R18-11-406) and protective of human health.” Surprisingly, these relevant statements are not included in the ADHS Health Consultation Report for RID’s wells. Nevertheless, these relevant statements demonstrate that ADHS correctly recognizes that there are environmental health-based standards that must be achieved in a WQARF remedial action, even if there is no immediate public health risk.

In closing, RID is concerned that the casual and uninformed reader of the ADHS Report could be misled to the conclusion that there are no applicable health-based legal requirements, standards or policies requiring ADEQ and PRPs at the WVBA WQARF Site to proactively address the groundwater contamination impacting the WVBA aquifer and RID’s water supply wells. Such an impression would be incorrect and would violate multiple applicable state laws and WQARF Program requirements.¹²

The ADHS Report also overlooks critical information regarding the pervasive exposure pathway from inhalation of hazardous VOC contaminants released to ambient air, historically over the past 30 to 50 years and going forward, as well as ADEQ requirements to prevent such pollutant transfer.

We appreciate your prompt review of these comments and are available to meet at your convenience regarding any questions you may have.

Best Regards,
Synergy Environmental, LLC



Joel Peterson, PE

cc: by Electronic Mail

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¹¹ ADHS, Health Consultation: Kinder Morgan Yuma Booster, An Update for Water Sampling Results, page 2 (2013).

¹² For more complete information on the applicable state laws, standards and policies see RID’s responses to comments on its FS Report.